IN THE CLAIMS

Please amend the claims as follows:

1.   (currently amended) ~~Ultrasonic~~ An ultrasonic viewing system, for displaying images of an artery using a curved array of transducer elements, comprising means for acquiring ~~(51)~~ of an ultrasonic image sequence and a Doppler color sequence of a segment of artery explored along its longitudinal axis and having walls moving in relation with the cardiac cycle; and comprising processing means for:

estimating the velocity and motion amplitude ~~(53, 54, 55)~~ of the artery walls along Doppler color ultrasound scanning lines;

estimating the motion amplitude ~~(58)~~ of the artery walls along lines perpendicular to the artery global axis; and further comprising:

display means for displaying ~~(60)~~ curves of this last artery wall amplitude on a dedicated display on which the user may have interaction.

2.   (currently amended) The viewing system of Claim 1, wherein the processing means for estimating the artery walls motion amplitude ~~(56)~~ along lines perpendicular to the artery global axis comprises means for:

estimating the artery walls motion amplitude (WM) in the direction of motion (MD) in function of the motion amplitude (WM_{TDI}) measured along the Doppler color line corrected to compensate for the Doppler angle.

3.   (currently amended) The viewing system of Claim 2, wherein the processing means ~~(53, 54, 55)~~ for estimating the artery

walls motion amplitude along Doppler color ultrasound scanning lines comprises means for segmenting the artery walls, providing wall structures (P1, P2); and means for:

calculating intersections ~~(53)~~ between the Doppler color lines and the structures;

estimating time references and integrating velocities of each structure over a time delay between two time references to provide walls motion estimation ~~(55)~~.

4.   (currently amended) The viewing system of Claim 3, wherein the walls motion estimation ~~(55)~~ is corrected by a shift of the amplitude of motion to reset the amplitude to zero at an instant of the time delay when the walls have no motion.

5.   (currently amended) The viewing system of ~~one of~~ Claims 1 ~~to~~ 4, comprising means for evaluating ~~(57)~~ artery dilation as the difference of motion of the two structures of the artery for each Doppler color line.

6.   (currently amended) The viewing system of Claim 5, comprising means for:

providing velocities ~~(54)~~ associated to each Doppler color line as a result of the averaging of a few velocities;

providing global averaging of the velocities for each structure to estimate the time references as the beginnings of the cardiac cycles.

7.   (currently amended) The viewing system of ~~one of~~ Claims 1 ~~to~~ 7, having means to display information in each frame of the sequence comprising:

the structure location;

the motion of each structure measured along the color lines and displayed along the perpendicular to the artery axis;

lines representing the overall shapes of the motions.

8.   (currently amended) The viewing system of ~~one of~~ Claims 1 ~~to 7~~, wherein the interface display comprises displays among the followings:

display of an echo image ~~(10)~~ corresponding to a selected user frame, combined with the segmentation result ~~(11)~~ for the artery walls and the dilation amplitudes ~~(12)~~ of motion for said walls;

display curves ~~(20)~~ of the maximum and minimum amplitudes of the dilations for a given cardiac cycle as a function of a color line as selected in the display of the echo image;

display of the amplitude of dilation ~~(30)~~ as a function of time over several cardiac cycles; and

display of the amplitude of dilation ~~(40)~~ as a function of time for a cardiac cycle selected by the user.

9.   ~~A system as claimed in~~ The viewing system of Claim 8, having color display means to display colored structures for the artery walls and colored patterns for the wall dilation, superimposed on the ultrasonic images.

10.   (currently amended) ~~Image~~ An image processing method, comprising the steps of:

acquiring ~~(51)~~ of an ultrasonic image sequence and a Doppler color sequence of a segment of artery explored along its longitudinal axis and having walls moving in relation with the cardiac cycle; and comprising processing steps of:

estimating the velocity and motion amplitude ~~(53, 54, 55)~~ of the artery walls along Doppler color ultrasound scanning lines;

estimating the motion amplitude (58) of the artery walls along lines perpendicular to the artery global axis; and further comprising steps of:

displaying (60) curves of this last artery wall amplitude on a dedicated display on which the user may have interaction.

11.   (currently amended) A The viewing system as claimed in one of Claims 1 to 9, comprising a suitably programmed computer of a workstation or a special purpose processor having circuit means, which are arranged to process ultrasonic images according to the method, having means to display the images processed according to said method, and having a user interface such as a mouse or a keyboard to permit the user of interacting on the respective images of the sequence in order to display the quantified parameters related to the artery walls.

12.   (canceled)

13.   (new) The viewing system of Claim 4, comprising means for evaluating artery dilation as the difference of motion of the two structures of the artery for each Doppler color line.

14.   (new) The viewing system of Claim 6, having means to display information in each frame of the sequence comprising:

the structure location;

the motion of each structure measured along the color lines and displayed along the perpendicular to the artery axis;

lines representing the overall shapes of the motions.

15.   (new) The viewing system of Claim 7, wherein the interface display comprises displays among the following:

display of an echo image corresponding to a selected user frame, combined with the segmentation result for the artery walls and the dilation amplitudes of motion for said walls;

display curves of the maximum and minimum amplitudes of the dilations for a given cardiac cycle as a function of a color line as selected in the display of the echo image;

display of the amplitude of dilation as a function of time over several cardiac cycles; and

display of the amplitude of dilation as a function of time for a cardiac cycle selected by the user.

16.   (new) The viewing system as claimed in Claim 9, comprising a suitably programmed computer of a workstation or a special purpose processor having circuit means, which are arranged to process ultrasonic images according to the method, having means to display the images processed according to said method, and having a user interface such as a mouse or a keyboard to permit the user of interacting on the respective images of the sequence in order to display the quantified parameters related to the artery walls.